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NEWSLETTER

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Edited by Mr. C. Alan Ford

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SEASON'S GREETINGS!

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ONTARIO UNIVERSITIES COMPUTING CONFERENCE

The Computer Coordination Group, Committee of Presidents of Universities of Ontario, has announced the date for the second Ontario Universities Computing Conference. This will be held on January 28th and 29th, 1971 in Ottawa. The announced objectives are to bring together users, policy makers and computing personnel for the examination of problems of using computer services.

The conference will be divided into two sessions each on the topics of policy and of service. The general topics for the policy sessions are:

The allocation problem as viewed from the Computing Centre and

The competition for resources as viewed from University Administration.

The sessions on service will consider:

The users view of what services are needed now

and

What services will be needed in the future.

Although a closing date of December 1st has been set for the submission of abstracts for papers, it may not be too late for the vitally interested user to offer material for this Conference. For further information call the editor (928-2991) or visit him in Room 105, Sandford Fleming Laboratories.

The first Ontario Universities Computing Conference was marked by lively discussions of the papers from the floor. The second conference will no doubt follow suit. Watch our Bulletin Boards for further information on this important event.

SHARE XXXVI

The first announcement regarding SHARE XXXVI has been received at UTCC. Los Angeles is the place, the Biltmore Hotel is headquarters, and the dates are March 8 - 12, 1971. Hotel reservations must be made before February 22nd. Anyone considering representing University of Toronto at SHARE XXXVI can check at Room 105, Sandford Fleming Laboratories for more information.

SPECIAL INTEREST GROUP ON STANDARDS

The Canadian Information Processing Society, Toronto Branch, has a number of active special interest groups. One of these concerns itself with data processing standards. It is chaired by your editor, C. A. Ford.

Several members of the special interest group are also participating in standards projects under way with the Canadian Standards Association. The Special Interest Group is actively considering what its role should be considering the existence of a formal standards body such as CSA. With this question in mind, the SIG chairman attended a recent CSA project reporting session. It is clear that CSA's efforts would benefit from more participation by the many Canadian experts in the computing and data processing field. At least one project effort has been organized in part as a research exercise from a University School of Business. Some vitally interesting topics await the interest of the nation's experts. For instance, can a standard measure of computer throughput be developed? In a somewhat different direction, what can the computer societies, such as CIPS and DPMA do to assure that the CSA standards are meaningful and are understood and utilized by the members of the computing community?

Further information concerning CIPS, the Standards Group, or CSA may be obtained from Mr. C. A. Ford, Room 105, Sandford Fleming Laboratories (Telephone: 928-2991).

NEWS ON STATISTICAL PACKAGES

The Statistical Package for the Social Sciences, SPSS, has been obtained through the National Opinion Research Centre of the University of Chicago. This package is very similar in concept to the 7094 DATA TEXT system, but it runs on the S/360. Further details on the package are available in the book Statistical Package for the Social Sciences, by Norman H. Nie, Dale H. Bent and C. Hadlai Hull, McGraw-Hill, 1970.

The program is available in load module form on TIC022 but as yet no catalogued procedures for its use have been set up. It is hoped to do this early in January. In the meanwhile anyone wishing to use the package should contact the Users' Service Manager, Room 128, Sandford Fleming Laboratories, local 2694.

It has also just been announced that the revised DATA-TEXT system for the S/360 will be available by January 1971. The Computer Centre is making arrangements to obtain the package. Please watch the Newsletter and SSBs for further news on DATA-TEXT.

FAIL SOFTLY AND CONFUSE THE USER

To enlighten the Holiday Season the UTCC, with the help of IBM, came up with a new game called "Fail Softly and Confuse the User". This occurred when we put in a modification to the Operating System which was supposed to prevent a job which ends abnormally from causing significant difficulties to the system. As a result, all our old familiar friends such as the System Completion codes of 804 and 806 vanished and were replaced by helpful messages like "CORE IMAGE COMPLETE -1".

Needless to say this caused a rash of queries with Users' Services. We were similarly confused. Several SSBs (66:70, 67:70 and finally 68:70) were issued while we sought to locate the problem. The Operations Group tracked it down to a particular modification. At 2:30 p.m. on Friday, December 4th, the modification was removed. Since then, to the best of our knowledge, the "Core Image" messages have not been seen.

We apologize to our users for any confusion, alarm and delay which has been caused by the change. The theory was great but at present its effects are less than desirable. Investigations will continue at the Computer Centre to determine how to get the same system security without losing the old familiar completion codes.

SYSTEM RELIABILITY

System	Month	Uptime	MTBF
S/360 #1	October	92.9%	8.3 hours
	November	97.8%	11.5 hours
S/360 #2	October	91.3%	5.8 hours
	November	96.7%	11.2 hours

The above table illustrates the continued improvement in reliability through November. This was coupled with a dramatic increase in load (shown elsewhere in this issue) which has been a true test of all system resources.

The 7094 and its supporting 1401 continue to operate satisfactorily with only one problem (in the control circuitry) reported and fixed.

PRODUCTION DATA

The number of jobs processed in November was 71% above October's volume, which itself was 54% above September. Table I records the growth, which occurred across all systems. Table II shows the change from November of 1969. This November peak almost equals the previous high record of 98,943 jobs recorded last March.

Exploitation of the Class V job stream on the second S/360 has increased significantly. This has helped us meet the demand without major backlogs on S/360 No. 1. Improvements in software and operational practices have allowed us to process 46% more jobs on System No. 1 as well. Still more capacity may be provided on System No. 2 but System No. 1 is relatively saturated at the November load level.

Overnight turnaround of Classes I, J and M jobs becomes doubtful at this load level. Users should beware of this. First commitments of throughput are to RUSH and ASAP jobs. If-Otherwise-Idle jobs must wait for time that would otherwise be idle. Meanwhile, we'll do everything possible to eke out still higher productivity.

System	Sept.	Oct.	Nov.
S/360	11,058	13,746	19,709
7094	1,597	1,753	2,090
HSJS	24,067	41,094	75,193
TOTAL	36,722	56,593	96,992

TABLE I Number of Jobs Processed
September through November 1970

PRODUCTION DATA (Cont'd)

System	Nov./69	Nov./70	Change
S/360	9,688	19,709	+ 104%
7094	3,431	2,090	- 39%
HSJS	62,337	75,193	+ 21%
TOTAL	75,556	96,992	+ 28%

TABLE II Comparison of Production
November 1969 and November 1970.

PAPER TAPE TO MAGNETIC TAPE...STILL MORE!

Immediately after the final typing of the last Newsletter, in which we reported some success in maintaining serviceability on the PDP-8/s media conversion system, its high speed paper tape reader suffered wear and tear breakdowns. This was a nasty surprise considering the maintenance effort which had been given to the equipment. However, since the system seems intent on betraying its own publicity, we will not tell you how good its performance is now. Try it and see.

BOOK REVIEW

"Job Control Language is hard to learn and not always easy to use." "The design and coding of the JCL statements can occupy a significant part of the programmer's time." "It is apparent from the size of this manual that JCL can be quite complicated. However, it can also be very useful." These three quotes are taken from System/360 Job Control Language, by Gary DeWard Brown, John Wiley and Sons, 1970, 292 pages, price \$8.75.

Many of the UTCC users will agree with these quotes. If they do, they could be well advised to study Mr. Brown's book, especially if they are expecting to make extensive use of an S/360. Not only does the book provide detailed coverage of JCL itself but also the second chapter gives a very good introduction to how jobs are processed under OS. The third chapter discusses, in general terms, the JCL needed by a job and the fourth chapter covers formats and rules. Chapters are devoted to the JOB card, the EXEC card, and to parameters common to both JOB and EXEC cards. Chapters 8 through 12 cover the DD cards. Chapter 13 covers the linkage editor with an extensive section on overlays. Chapter 14 discusses miscellaneous JCL features. Three Appendices, one dealing with DCB sub-parameters and another providing a summary of JCL, are included.

One advantage of the book is its organization. For example, a person wishing to use magnetic tapes can refer straight to the appropriate chapter. The material is backed up by extensive examples in easy-to-read type. The first edition of the book corresponds to Release 18 of the Operating System, which is expected to be in use at the Centre for some months to come.

Several errors have been noticed in the book, most of which appear to be typographical and therefore reasonably obvious to the reader. However, in summary, this appears to be a very worthwhile book for serious S/360 users.

SSBs ISSUED

66:70 "Core Image Complete" and "Core Image Failed"
messages under Release 18.6

67:70 Core Image Problems

68:70:1 Core Image Problems

2 Modifications to Arts and Science Model 20

69:70:1 ICS Library routines CZERPL and ZERPOL

2 MSGLEVEL default for S/360 No.1 under O/S Release 18.6

70:70:1 Christmas and New Year Schedules

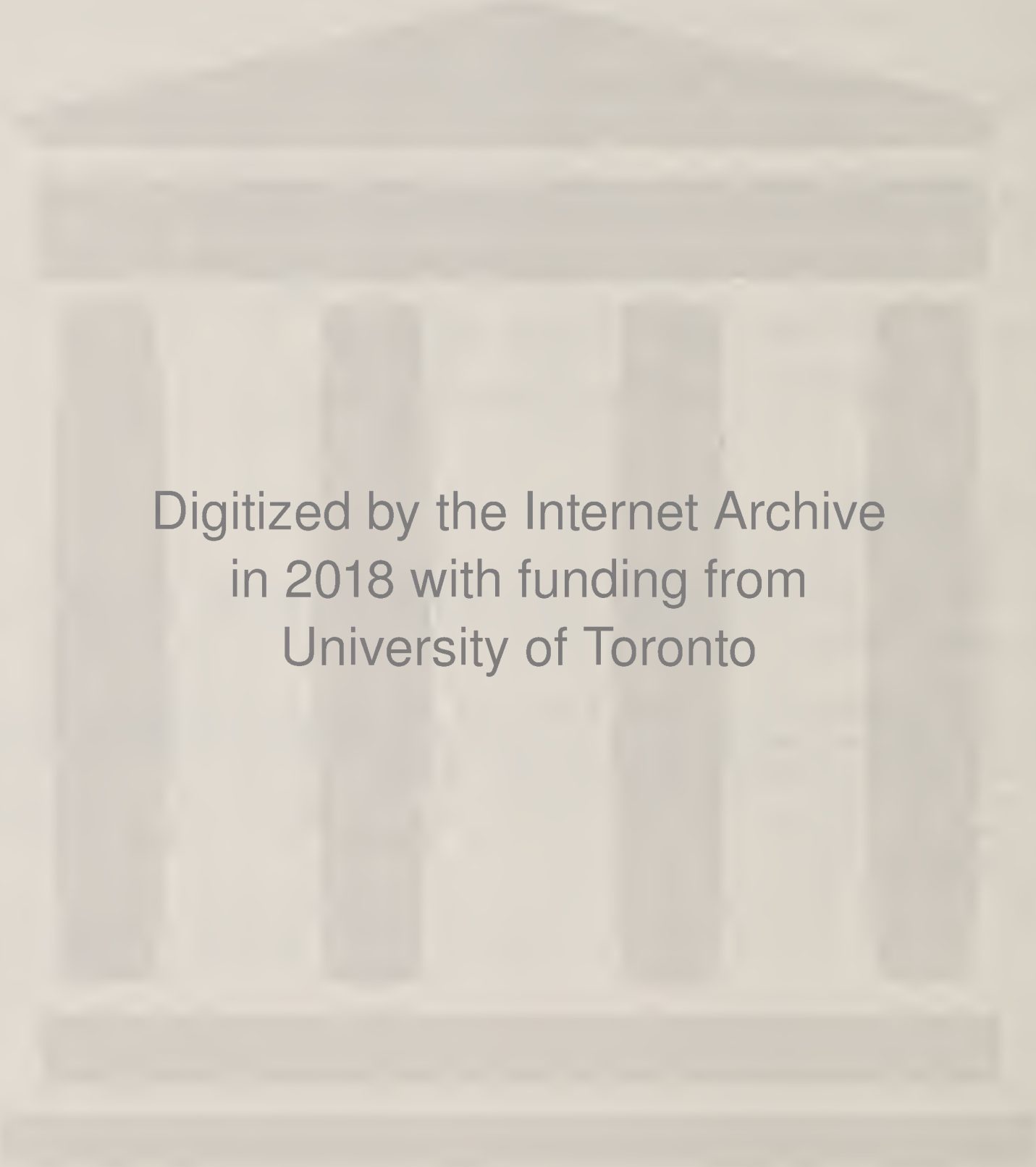
2 Change to COBOL catalogued procedure

PERSONNEL CHANGES

UTCC is pleased to welcome blonde Sylvia May to our tape library and three new faces to the Post Office belonging to Zoltan DeNemethy, Zuzana Havlik and Barbara Ann Malham.

Unfortunately we have lost the services of Douglas Mason from the Operations Group and Rick Soderstrom is leaving USG for the milder climes of the West coast.

Barbara Dudka took time out to become Mrs. Brian Ablett on December 5th.



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USERS' REFERENCE MANUAL

The first part of the new Users' Reference Manual is due off the presses the early part of January. We have received many reservations and these lucky people will receive priority over all the latecomers. A note to the address below will reserve your copy. When your copy is ready you will be notified by mail directly. The cost of this Manual is \$2.00.

Please reserve: # of copies of the Users' Reference
Manual for the following:

Name:

Address:

Fold Here

MAIL TO:

Mr. J. Palter,
University of Toronto Computer Centre,
Room 131,
Sandford Fleming Laboratories,
University of Toronto.

NEW LITERATURE RECENTLY ACQUIRED IN THE DCS LIBRARY

Ann Arbor Graph Theory Conference, 2d, 1968.

Proof techniques in graph theory, ed. by F. Harary.

Benay, Joannes.

Dictionnaire anglais-francais des termes relatifs au traitement de l'information. 1969.

Brown, Gary deWard.

System/360 job control language. 1970.

Carvell, H.T. and Svartvik, J.

Computational experiments in grammatical classification. 1969.

Cocke, J. and Schwartz, J.T.

Programming languages and their compilers. 1970.

Conference on Data Systems Languages (CODASYL). COBOL Committee.

CODASYL COBOL journal of development, 1969.

Daniel, J.W. and Moore, R.E.

Computation and theory in ordinary differential equations. 1970.

Diebold, J.

Man and the computer: technology as an agent of social change. 1969.

Digital Equipment Corp.

Logic Handbook. 1970 edition.

Elizur, Dov.

Adapting to innovation: a facet analysis of the case of the computer.

Environmental Design Research Assoc. Conference, 1st Annual, Chapel Hill, N.C., 1969.

EDRA 1 (Proceedings of the conference). Ed. by H. Sanoff and S. Cohn.

Fike, C.T.

PL/1 for scientific programmers. 1970.

Galler, B.A. and Perlis, A.J.

A view of programming languages. 1970.

Givone, D.D.

Introduction to switching circuit theory. 1970.

Hammer, Preston C., ed.

Advances in mathematical systems theory. 1969.

Harrison, M.C.

Data-structures and programming. 1970.

Harrison, M.A.

Lectures on linear sequential machines. 1969.

Husson, Samir S.

Microprogramming: principles and practices. 1970.

Information Processing Association of Israel. Special Interest Group on
Group on Computers and Medicine.
Computers and medicine in Israel. 1970.

International Conference on Computing Methods in Optimization Problems, 2d,
San Remo, Italy, 1968.
Computing methods in optimization problems. 1969.

Irland, M.I. and Fischer, P.C.
A bibliography on computational complexity. 1970.
Waterloo, University. Dept. of Applied Analysis.

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Proceedings of Fall JCC, 1970.(v.37)

Kohavi, Zvi.
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New York, McGraw-Hill, 1970.

Leeds, Herbert D. and Weinberg, G.M.
Computer programming fundamentals: based on the IBM System/360.

Machine Intelligence 4, 5.
Proceedings. 1969, 1970.

Mathison, S.L. and Walker, P.M.
Computers and telecommunications: issues in public policy. 1970.

Meek, D.S.
Numerical methods for special ordinary differential equations.
Toronto, Univ. Dept. of Computer Science, 1970. (M.Sc. thesis).

Nashelsky, L.
Digital computer theory. 1966.

Rice, J.K. and Rice, J.R.
Introduction to computer science: problems, algorithms, languages,
information and computers 1969.

Schriber, T.J.
Fundamentals of flowcharting. 1969.

Scott, E.L. and Bolz, R.W. eds.
Automation and society. 1969.

Senko, Michael E. et al.
File design - a practical approach. 1969.

Squire, W.
Integration for engineers and scientists. 1970.

Symposium on Switching and Automata theory.
IEEE conference record. 7th, 1966.

Symposium on the Design of Computer Simulation Experiments, Duke Univ., 1968.
The design of computer simulation experiments. Ed. by T. H. Naylor. 1969.

TECHNICAL TIP

WHY NOT USE DISK STORAGE?

Many jobs presently using cards would run more efficiently if tapes or disk were employed. Production jobs which use the same program or the same data many times should use disks or tapes for storage wherever possible. Card decks deteriorate physically if used too often or are stored too long. They can be dropped and cards can get misplaced. Disk storage used to store load modules, programs which have been compiled and linkedited, or large amounts of data obviate these problems.

Various arrangements can be made for disk storage at UTCC. Whole or part of a disk pack can be rented. A whole pack, which can store up to 29 million bytes of information, can be rented for an initial fee of \$25.00 plus \$25.00 per month thereafter. Space on a pack can be rented for an initial fee of \$1.00 plus \$1.00 per 100 tracks per month, where 100 tracks holds about 720,000 bytes of information. Alternatively, storage of user owned packs costs an initial fee of \$25.00 plus an annual charge of \$10.00. There also is a charge of \$5.00 for each job run on the S/360 which requires a disk to be mounted.

For frequently run jobs space is available on disk packs which are always online to the system. The charge for this type of storage is \$0.50 (50 cents) per track per month. Hence one \$5.00 mount charge in a month would have covered the rental of 10 tracks of online storage holding some 72,000 bytes of information. Thus users should opt for online or mountable packs on the basis of the frequency with which their jobs are run.

A third possible storage option is open for programs used very frequently by a large number of users. Examples of such programs are SNOBOL and GPSS. These can, upon negotiation be placed on the System Library Pack, which is shared by the two S/360's, by UTCC staff. UTCC handles all changes, so that the information need only be read by the users. Please direct all requests for placing programs on the System Library Pack to the Users' Service Group Manager, Mr. R. Williams, Room 128, Sandford Fleming Laboratories, local 2694.

TECHNICAL TIPUSE OF FORTRAN EXTENDED ERROR HANDLING FACILITY

Some users appear to be unaware of the fact that the G and H levels of FORTRAN IV available at the UTCC include the Extended Error Handling Facility. This facility provides the user with more information about data - dependent or program errors detected during execution of a FORTRAN program. It also gives the user dynamic control over such items as:

- the number of times an error is allowed to occur before the program is terminated,
- the maximum number of times an error message is printed,
- whether or not a traceback map is to be printed, or
- whether or not a user-written error-exit routine is to be called.

Further details of the Facility may be found on pages 107-122 of the FORTRAN IV (G and H) Programmer's Guide (IBM Form No. C28-6817-1 for Release 18.6). Users with programs of any size or complexity should be aware of the Facility as its use may save them considerable amounts of both their own time and computer time.

APPENDIX A

Computer Research Facility

C O M P U T E R R E S E A R C H F A C I L I T YMFT II AT CRF

An MFT II system (release 19) was implemented on the CRF 360/44 on Monday 30 November, 1970. The purpose of this system is to permit the concurrent execution of programs of different types. This means, for example, that interactive graphics jobs can now take place at the same time as other jobs. The future plan for the MFT II system is to support a Real Time data acquisition system (which currently must be run independently under DAMPS) and the Star-Ring System. MFT is not, of course, suitable for all of our problems and there will always be applications which require the whole machine or a different operating system.

System Configurations

There are two standard configurations provided in the CRF MFT II system. These are:

Configuration 1

P0 - Partition size 136K - for classes B,E,D, and J.

P1 - Partition size 16K - resident writer.

P2 - Partition size 54K - for classes D,C, and K.

Configuration 2

P0 - Partition size 190K - for class L.

P1 - Partition size 16K - for resident writer.

Full details of the job classes are available from CRF Information Bulletin No. 10:70 and also 12:70.

Future Configuration

The System Configuration 1 mentioned above will be modified in the near future to accommodate the Star-Ring Monitor. This will involve reducing partition P0 from 136K to 126K and the addition of a fourth partition 10K in size.

Other Systems

The PCP (Release 18.6) and DAMPS systems are still available to users.

The PCP system is needed for work which requires the entire machine under an IBM operating system.

The DAMPS system is required for data acquisition and real time applications using the RADDT terminals.

The Star-Ring System

The Star-Ring System is a method of interfacing machines which was designed and developed by the Computer Systems Research Group under Professor K.C. Smith and John Potvin.

This system is currently being implemented in the CRF lab. as a means of connecting the Microfilm Plotter on-line to the 360/44. The AD/4 analog computer and the PDP/8 computer will be added to the system at a later date.

The system permits the communication between any two devices connected to the Star-Ring.

